

Report Series B: Surface Water Hydrology

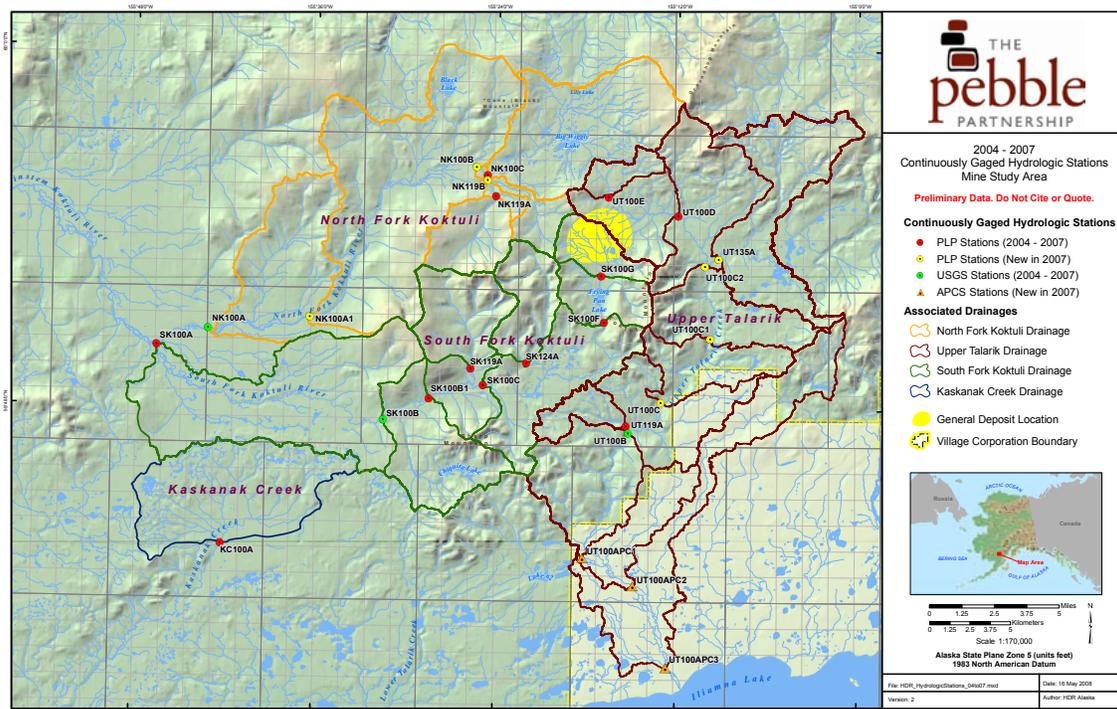
Since 2004, the Pebble Partnership has retained two independent engineering firms to manage an ongoing program of surface water hydrology data collection at key Pebble Project sites. HDR Alaska is responsible for the installation, maintenance and monitoring of multiple stream gaging stations in the project study area, as well as data collection. Vancouver-based Knight Piesold is responsible for data processing and analysis.

Thirteen stream gaging stations have been installed and continuous water flow data has been collected in four distinct watershed and stream systems in the Pebble Project area since 2004. These include:

- the North Fork Kaktuli River watershed – 2 gages
- the South Fork Kaktuli River watershed – 7 gages
- the Upper Talarik Creek watershed – 3 gages
- the Kaskanak Creek watershed – 1 gage

Each of these 13 gages is operated by Pebble Partnership consultants HDR Alaska. In addition, the United States Geological Survey (USGS) operates three stream gaging stations within the project study area, one on each of the North Fork Kaktuli River; the South Fork Kaktuli River and Upper Talarik Creek. Real time and summarized discharge data for these USGS stations are available online USGS at: <http://waterdata.usgs.gov/ak/nwis/current/?type=flow>.

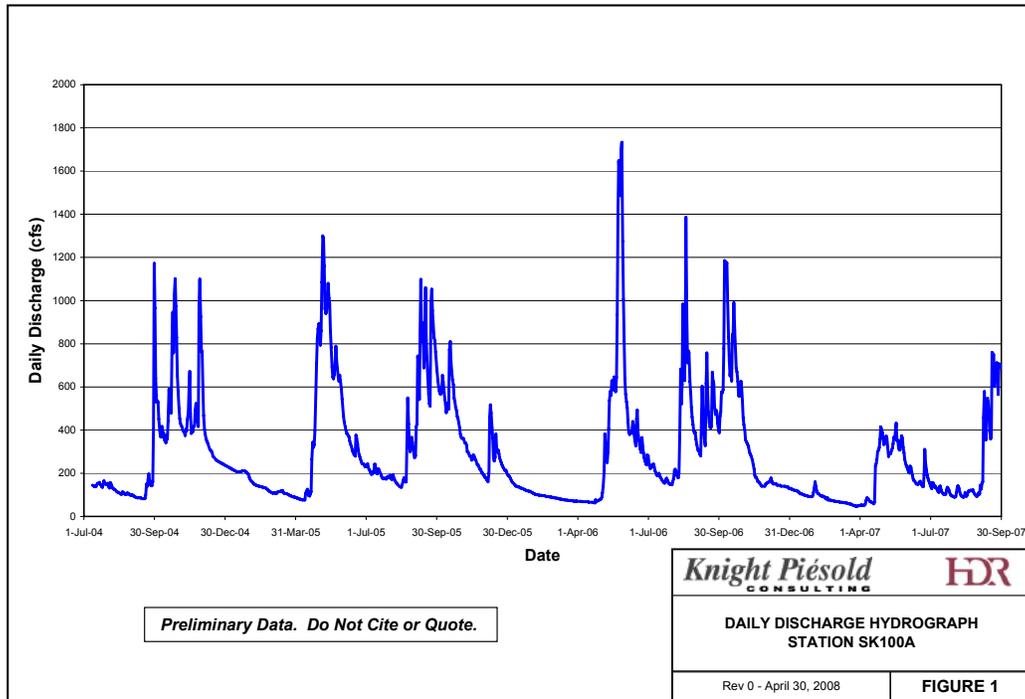
The locations of all 16 gaging stations are shown on the map below.



The Pebble Project study area for surface water hydrology is defined by the deposit (which straddles the South/North Fork Kaktuli and Upper Talarik drainages), as well as potential sites for future mine facilities – such as the mill and tailings storage area.

As such, the Pebble Partnership is studying surface water flows in the main-stem and tributary streams of each of these water systems. The company has also installed a stream gage in the Kaskanak Creek watershed southwest of the Pebble deposit to measure potential inter-basin water transfer from the South Fork Koktuli system.

The North Fork Koktuli watershed (113 square miles) and the South Fork Koktuli watershed (104 square miles) converge to the west of the Pebble deposit and subsequently flow into the Mulchatna and Nushagak river systems. The Upper Talarik watershed (140 square miles) drains into Lake Iliamna and subsequently into the Kvichak River, while Kaskanak Creek drains directly into the Kvichak below Lake Iliamna.



Example: A daily hydrograph from Gaging Station SK100A, located on the mainstem of the South Fork Koktuli River

The Pebble Partnership's surface water hydrology study program collects continuous discharge (or stream flow) data from each of its gages. The information being released in May 2008 as part of the *Pre-Permitting Environmental & Socio-Economic Data Report Series* includes daily mean discharge data for all 13 stream gaging stations since their installation through September 2007. Mean monthly discharge statistics are also provided for the 2005, 2006 and 2007 water years.

Ten additional stream gaging stations were installed within these same drainages in 2007. Seven have been installed and are being operated by Pebble Partnership consultants. Three have been installed on Alaska Peninsula Corporation (APC) lands and are operated by APC Services. Discharge data for stations installed in 2007 will be available in May 2009.

The surface water hydrology studies, in combination with the Pebble Partnership's ongoing groundwater hydrology study program, will provide a comprehensive assessment of the water regime in the project area – including interactions between groundwater and surface water. Surface water hydrology data are also employed within the Partnership's water quality study program to help calculate existing mineral loadings in downstream surface water that originate from the mineralized area surrounding the Pebble deposit.

The Pebble Partnership's surface and groundwater hydrology baseline studies will provide important information for project engineers developing a water management model for the proposed Pebble mine. Collected groundwater data will be released as part of the Pebble Partnership's *Pre-Permitting Environmental & Socio-Economic Data Report Series* in June 2008.

Complete copies of the surface water hydrology data reports released as part of the *Pebble Partnership's Pre-Permitting Environmental & Socio-Economic Data Report Series* are available online at www.pebblepartnership.com.